

1986

## CyanoNews (Vol. 2, No. 1, March 1986)

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# CYANO NEWS

March 1986

CYANO NEWS is intended to provide cyanobacteriologists with a forum for rapid, informal communication, unavailable through journals. It relies entirely on news provided by its readers. Please send news, requests, publications, comments, etc. to the address below. DEADLINE for the next issue is JULY 1, 1986. If you wish to be included in the mailing list, send your name, address, telephone number, and a brief description of your research interests to:

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The MIDWEST REGIONAL NITROGEN FIXATION RESEARCH CONFERENCE will be held July 28-29, 1986 in Ames, Iowa, U.S. The topics covered will be biochemistry, physiology, and genetics of nitrogen fixation. Although intended to be largely a regional conference, participation of others is welcome. Deadline June 1, 1986. Contact Jay Peterson, Dept. of Botany, Iowa State University Ames, Iowa 50011 USA, (515) 294-3522.

The 2ND ANNUAL WORKSHOP ON CYANOBACTERIAL GENETICS will be held... When? Where? Two years ago, at the first annual workshop it was decided to continue the event in 1986 (skipping 1985 owing to the International Symposium on Photosynthetic Prokaryotes). Bob Haselkorn hoped to organize the workshop again, but his daughter is getting married in August and Margot was firm: only one Haselkorn extravaganza per summer. THEREFORE, the workshop is in need of another home. Is anyone out there able to put it together this year? If so, please contact me (J.E.), to avoid the theoretical possibility of multiple workshops. Bob Haselkorn is available for any advice, financial or otherwise: Bob Haselkorn, Dept. of Molecular Genetics and Cell Biology, 313 Cummings Life Sci. Center, University of Chicago, Chicago, IL 60637, (312) 962-1069.

Tony Walsby made the suggestion that he act as U.K. CLEARING HOUSE FOR CYANO NEWS, receiving all copies bound for U.K. cyanobacteriologists and mailing them out at local rates. In addition to cutting mailing costs substantially, local outposts can only increase intercommunication, which is the primary purpose of this newsletter. Any volunteers outside of U.K.? (A breakdown by country of cyanobacteriologist respondents is included at the end of this issue).

The name of the CORRESPONDENT for each item in this newsletter is capitalized, so you know who to write to for reprints or whatever. The CORRESPONDENT'S ADDRESS appears in the DIRECTORY of Cyanobacteriologists at the END OF THIS NEWSLETTER.

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\*NEWS\*

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TINEKE BURGER-WIERSMA reports the isolation of a filamentous prochlorophyte, a prokaryote containing chlorophylls a and b and lacking phycobilin pigments. The freshwater species can easily be grown in a mineral medium. A paper describing the strain and its pigments has been and another is in preparation describing the morphology, ultrastructure, physiology, and ecology of this organism.

BRUCE McFADDEN has succeeded in transforming *Anacystis nidulans* 6301 with pBR322 or pCH1 (a derivative of a plasmid native to *Anacystis nidulans* R2. Expression of ribulose biphosphate carboxylase is greatly amplified in pBR322 transformants. These results will appear in Proc. Natl. Acad. Sci. U.S.A. in March or April.

## ON THE RETIREMENT OF G.E. FOGG

G.E. Fogg, a botanist who performed the first sustained experimental investigations on cyanobacteria and made notable contributions to our knowledge on nitrogen fixation and heterocysts, has retired after a career spanning 45 years. His first publication (Fogg 1941) was a scholarly review of early literature on gas vacuoles, and his second (Fogg 1942) described perhaps the first rigorous demonstration of nitrogen fixation by an axenic cyanobacterial culture. This was followed by his classic papers on the production of heterocysts in which he established their inverse correlation with cell nitrogen content (Fogg 1944), inhibition of their formation by ammonium and other nitrogenous substances (Fogg 1949), and their developmental cytology, including accumulation of arginine reserves (Fogg 1951). In 1961 he moved from University College London to form the Westfield school of cyanobacteriologists whose studies culminated in the first isolation of heterocysts and the suggestion that they were the site of nitrogen fixation (Fay, Stewart, Walsby & Fogg 1968). His move to the Chair of Marine Biology at the University College of North Wales saw the expansion of his interest in phytoplankton, including picoplanktonic cyanobacteria, the topic of his Review Lecture at the Royal Society of London on 13 February 1986.

Tony Walsby

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FOGG, G.E. (1949). Growth and heterocyst production in *Anabaena cylindrica* Lemm. II. In relation to carbon and nitrogen metabolism. *Ann. Bot.* 13:241-259.  
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This space is reserved for notices of job opportunities, requests by respondents for strains or information, etc.

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# CYANOBACTERIOLOGIST RESPONDENTS: BY LOCALITY

## AUSTRALIA

Andrews, T. John  
Smith, Geoffrey D.

## JAPAN

Izui, Katsura  
Katsuki, Hirohiko  
Murata, Norio  
Ohki, Kaori  
Shinozaki, Kazuo  
Sugiura, Masahiro

## P.R.CHINA

Chen, T.W.  
Li, Shanghai  
Shi, Ding Ji

## R.O.CHINA

Chen, Pei-Chung  
Huang, Tan-Chi  
Lin, C.J.

## INDIA

Apte, Shree Kumar  
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Rai, Amar N.  
Singh, P.K.  
Thomas, Joseph  
Tuli, Rakesh

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Avissar, Yael J.  
Boussiba, Samy  
Friedberg, Devorah  
Kaplan, Aaron  
Tel-Or, Elisha  
Vonshak, Avigad

## USSR

Gromov, Boris V.

## HUNGARY

Borbely, George

## GREECE

Cook, Catherine M.  
Kalosaka, Katerina  
Lanaras, Thomas  
Papageorgiu, George C.  
Sotiropoulou, Georgia

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Schmetterer, Georg

## F.R.GERMANY

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Boger, Peter  
Bothe, Hermann  
Ernst, Anneliese  
Juttner, F.  
Krumbein, Wolfgang  
Michel, H.  
Osiewacz, Heinz D.  
Scherer, Siegfried

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Erickson, Jeanne  
Sidler, Walter

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Ciferri, Orio  
Tiboni, Orsola

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Hallbon, Lars  
Lindblad, Peter  
Pettersson, Annette  
Renstrom, Eva

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Kaas, Hanne

## NETHERLANDS

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Karrenan, C.  
Kromkamp, Jacco  
Post, Anton  
Van der Oost, John  
Winder, Ben de  
Zevenboom, Wanda

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Feuillade, Mauricette  
Joset, Francoise  
Tandeau de Marsac, Nicole  
Thomas, Jean-Claude  
Thuriaux, Pierre

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Candau, Pedro  
Fernandez-Valiente, Eduardo  
Marques, Silvia  
Serrano, A.

## UK

Allen, J.F.  
Bendall, Derek S.  
Bowes, Jane M.  
Brooks, William P.  
Carr, N.G.  
Chaplin, Alan E.  
Codd, Geoffrey A.  
Day, John G.  
Eady, Robert  
England, Reg  
Fogg, G.E.  
Gallon, John  
Hayes, Peter  
Machray, Gordon C.  
Pearson, H.W.  
Rolfe, Stephen  
Taylor, Mary  
Walsby, A.E.  
Whitton, B.A.  
Wright, S.J.L.

## IRELAND

Houghton, James

## CANADA

Douglas, Susan  
Lau, Reginald  
Laudenbach, Dave  
Miller, A.G.

## USA

Allen, Mary Mennes  
Benemann, John R.  
Bullerjahn, George S.  
Cannon, Robert E.  
Castenholz, Richard  
Cobley, J.  
Conley, Pamela B.  
Curtis, Stephanie  
Dzelzkalns, Valdis  
Elhai, Jeff  
Gendel, Steven  
Golden, Jim  
Grossman, Arthur  
Hostos, Eugenio de  
Jensen, Thomas E.  
Kallas, Toivo  
Krogmann, David W.  
Lammers, Peter  
Lemaux, Peggy G.  
McFadden, Bruce  
Meeks, Jack  
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Packer, Lester  
Paerl, Hans  
Pakrasi, Himadri  
Potts, Malcolm  
Schrautemeier, Bernhard  
Sherman, Louis  
Shively, J.M.  
Simon, Robert D.  
Stevens, Edward S.  
Sutton, Ann  
Szalay, Aladar A.  
Tabita, F. Robert  
Thiel, Teresa  
Vermaas, Wim  
Wasmann, Cathy C.  
Wolk, C.P.  
Wood, Nancy

## BRAZIL

Goncalves de Lima, Vilneyde

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March, 1986

Allen, J.F.	Department of Plant Sciences Baines Wing University of Leeds Leeds LS2 9JT ENGLAND (Tel) 0532/431751 extn. 6580	Protein phosphorylation and excitation energy distribution
Allen, Mary Mennes	Dept. Biological Sciences Wellesley College Wellesley, MA 02181 USA (Tel) 617/235-0320	Physiology, biochemistry Nitrogen metabolism Cell inclusions Unicellular cyanobacteria
Almon, Helmar	Lehrstuhl für Physiologie und Biochemie der Pflanzen Universität Konstanz, D-7750 Konstanz, GERMANY (Tel) 07531/883669	Nitrogenase, Hydrogenase Photosynthesis, Biosolar energy conversion, Storage compounds, Trace elements
Andrews, T. John	Dept. of Environmental Biology Research School of Biol. Sci. Australian National University P.O. Box 475 Canberra, A.C.T. 2601 AUSTRALIA	Ribulose biphosphate Carboxylase/oxygenase Inorganic carbon uptake Carboxysomes Biochemical genetics
Apte, Shree Kumar	Biology & Agriculture Div. Bhabha Atomic Research Centre Trombay, Bombay 400 085 INDIA (Tel) 5514910 Ext. 2340	Nitrogen fixation -- physiology, genetics, biochemistry Ion transport Salt tolerance
Avissar, Yael J.	Dept. Biology Ben Gurion University P.O. Box 653 Beer Sheva 84105, ISRAEL (Tel) 57/661363	Nitrogen metabolism Nitrogen assimilation Chlorophyll biosynthesis
Bendall, Derek S.	Dept. of Biochemistry University of Cambridge Tennis Court Road Cambridge CB2 1QW ENGLAND (Tel) 0223/351781	Electron transport and photophosphorylation
Benemann, John R.	School of Applied Biology Georgia Institute of Technol. Atlanta, GA 30332 USA (Tel) 404/894-3735	Nitrogenase Mass culture Specialty products
Bergman, Birgitta	Inst. of Physiological Botany Uppsala University Box 540 S-751 21 Uppsala SWEDEN (Tel) 46 - 18 - 18 28 16	Structure and function of free-living and symbiotic nitrogen-fixing cyano- bacteria

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\*Unfortunately, this printer does not understand accents, umlauts, etc., so apologies to all whose names deserve extra symbols and warnings to all who use this list.



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Binder, Andres	Institute of Plant Biology University of Zurich Zollikerstr. 107 CU-8008 Zurich, SWITZERLAND (Tel) 01-47 32 74	Structure and function of energy transducing membranes
Boger, Peter	Lehrstuhl fur Physiologie und Biochemie der Pflanzen Universitat Konstanz D-7750 Konstanz, GERMANY (Tel) 07531/882101	Respiration/photosynthesis Nitrogen Fixation Light-induced hydrogen evolution
Bonilla-Mangas, Ildefonso	Dpto. Biologia General Facultad de Ciencias Universidad Autonoma de Madrid 28049 Madrid SPAIN	Mineral nutrition (B, Mo) Dinitrogen fixation
Borbely, George	Biological Research Center Institut of Plant Physiology P.O. Box 521 Szeged H6701 HUNGARY (Tel) 62-23-022	Molecular biology Heat shock and heavy metal stresses
Bothe, Hermann	Botanical Institut University of Cologne Gyrhofstr. 15 D-500 Koeln 41, FRG (Tel) 0221 470 2760	Metabolism and genetics
Boussiba, Samy	Jacob Blaustein Institute for Desert Research Sede Boger Campus 84990 ISRAEL (Tel) 612/57-353333	Ammonia translocation
Bowes, Jane M.	Dept. of Biochemistry Tennis Court Road Cambridge CB2 1QW ENGLAND (Tel) 0223/351781 ext.241	Photosynthesis Mechanisms in Photosystem II
Brooks, William P.	Dept. of Biological Sciences University of Dundee Dundee DD SCOTLAND (Tel) 0382/23181 Ext. 4273	Toxicology Pharmacology Immunology
Bullerjahn, George S.	Division of Biological Sciences University of Missouri Tucker Hall Columbia, MO 65211 USA (Tel) 314/882-6371	Structure of PSI and PSII Genetics

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Burger-Wiersma, Tineke	Laboratorium v. Microbiologie Universiteit v. Amsterdam Nieuwe Achtergracht 127 1018 WS Amsterdam THE NETHERLANDS (Tel) 020/522-4070 (522-9111)	Photosynthesis Carbohydrate dynamics
Candau, Pedro	Dept. Bioquimica Fac. Biologia Univ. Sevilla Apdo. 1095 41080-Sevilla SPAIN (Tel) 617011 ext.11	Nitrogen metabolism Bioenergetics
Cannon, Robert E.	Dept. of Biology UNC-Greensboro Greensboro, NC 27412 USA (Tel) 919/379-5888	Cyanophages Pesticide effect on cyanophages and cyanobacteria
Carr, N.G.	Dept. of Biological Science University of Warwick Coventry, UK	Gene-transfer into and out of cyanobacteria
Castenholz, Richard	Biology Dept. University of Oregon Eugene, OR 97403 USA (Tel) 503/686-4530	Ecology/physiology Ecology of hot springs Sulfide effect on cyanobacteria
Chaplin, Alan E.	Dept. of Biochemistry University College of Swansea SA28PP UK (Tel) 0792 295375	Nitrogen Fixation
Chauvat, Franck	Service de Biochimie Bat 142 C.E.N. Saclay C.E.N. Saclay 91191 Gif Sur Yvette Cedex FRANCE (Tel) 908-35-86	Cloning of photosynthetic genes from unicellular cyanobacteria Plasmid function
Chen, Pei-Chung	Department of Botany National Chung Hsing University Taichung, Taiwan R.O.C.	Nitrogen fixation Hydrogen metabolism
Chen, T.W.	Soils and Fertilizer Institute Chinese Academy of Agricultural Sciences Peking P.R. CHINA	Nitrogen fixation by terrestrial cyanobacteria Uptake of cyanobacteria by plant protoplasts
Ciferri, Orio	Dept. of Genetics & Microbiol. Via S. Epifanio 14 - 27100 Pavia ITALY (Tel) 0382 31613	Biochemistry and molecular biology of Spirulina

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Cobley, J.	Dept. of Chemistry University of San Francisco 2130 Fulton Street San Francisco, CA 94117 USA (Tel) 415/666-6450	Mechanism of chromatic adaptation Fremyella diposiphon
Codd, Geoffrey A.	Dept. of Biol. Sciences Dundee University Dundee DD1 4HN SCOTLAND (Tel) 0382-23181 ext.4272	Physiology and biochemistry Carbon dioxide assimilation Carboxysomes Toxins
Conley, Pamela B.	Dept. of Plant Biology Carnegie Inst. of Washington 290 Panama St. Stanford, CA 94305 USA (Tel) 512/325-1521	Phycobilisome poly- peptide genes from chromatically-adapting cyanobacteria,
Cook, Catherine M.	Botanical Institute University of Thessaloniki 540 06 Thessaloniki GREECE (Tel) Int'nat'l Exch +31 991447	Carbon uptake and metabolism
Cox, Raymond P.	Biokemisk Institut Odense Universitet Campusvej 55 5230 Odense M DENMARK (Tel) 09/15 86 00 Ext. 2441	Nitrogen and hydrogen metabolism Photosynthesis in thermophilic cyanobacteria
Curtis, Stephanie	Dept. of Genetics Box 7614, NCSU Raleigh, NC 27695-7614 USA (Tel) 919/737-2294	Photosynthesis genes Heterocyst differen- tiation
Day, John G.	Dept. of Biological Sciences Univ. Dundee Dundee SCOTLAND (Tel) 0382/23181 Ext. 4273	Physiological, biotechnological, and toxicological aspects of micro-algae
Douglas, Susan	Biochemistry Department Dalhousie University Halifax, Nova Scotia B3H 4H7 CANADA (Tel) 902/424-3569	Molecular evolution Marine Cyanobacteria
Dzelzkalns, Valdis	16 Divinity Ave. Harvard University Cambridge, MA 02138 USA (Tel) 617/495-4260	Regulation of gene expression
Eady, Robert	AFRC Unit of Nitrogen Fixation University of Sussex Brighton BN1 9RQ UK (Tel) 0273 678132	Physiology and genetics of nitrogen fixation

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Elhai, Jeff	MSU/DOE Plant Research Lab Michigan State University East Lansing, MI 48824 USA (Tel) 517/353-6641	Genetics of heterocyst differentiation
England, Reg	School of Applied Biology Lancashire Polytechnic Corporation Street Preston, Lancashire UK PR1 2T0 (Tel) 0772 22141	Photosynthesis Heavy metal tolerance Molecular biology Algal physiology
Erickson, Jeanne	Dept. of Molecular Biology U. of Geneva 30 quai Ernest-Ansermet CH 1211 Geneve 4 SWITZERLAND	Photosynthesis PSII reaction center Thylakoid membrane biogenesis Light regulation
Ernst, Anneliese	Lehrstuhl für Physiologie und Biochemie der Pflanzen Universität Konstanz D-7750 Konstanz, GERMANY (Tel) 07531/882908	Nitrogenase, hydrogenase Photosynthesis, biosolar energy conversion Storage compounds Trace elements
Fernandez-Valiente Eduardo	Dpto. Biología General Facultad de Ciencias Universidad Autónoma de Madrid 28049 Madrid SPAIN (Tel) 7340100 Ext.1542	Mineral nutrition Nitrogen metabolism Dinitrogen fixation
Feuillade, Jacques Bernard	Station d'Hydrobiologie Lacustre, I.N.R.A. Institut de Limnologie F 74203 Thonon FRANCE (Tel) 50/71 49 55 poste 32	Ecology of Cyanophyceae, freshwater phytoplankton Models for growth, metabolism, Red Oscillatoria
Feuillade, Mauricette	Station d'Hydrobiologie Lacustre, I.N.R.A. Institut de Limnologie F 74203 Thonon FRANCE (Tel) 50/71 49 55 poste 33	Metabolism of cyanophyceae, freshwater phytoplankton Ecology Red Oscillatoria
Fogg, G.E.	Marine Science Laboratories Menai Bridge, Anglesey, Gwynedd LL59 5EH UK (Tel) 0248/712 641	Planktonic cyanobacteria
Friedberg, Deborah	The Hebrew University The Institute of Life Sciences Division of Microbial and Molecular Ecology Givat Ram Jerusalem ISRAEL	Gene expression Plasmids, vectors Genes of the photosynthetic apparatus

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Gallon, John	Dept. of Biochemistry University College Swansea, UK (Tel) 0792/295376	Nitrogen fixation Non-heterocystous cyano- bacteria
Gendel, Steven	Dept. of Genetics Iowa State University Ames, Iowa USA (Tel) 515/294-9357	Plasmids Nitrogen fixation
Golden, Jim	Dept. of Molecular Genetics and Cell Biology 313 Cummings Life Sci. Center University of Chicago Chicago, IL 60637 USA (Tel) 312/962-1081	Molecular biology of heterocyst differentiation and nitrogen fixation
Goncalves de Lima, Vilneyde M.Q.	Depto. Biologia Celular Universidade de Brasilia Campus - Brasilia D.F. BRAZIL (Tel) 061/2740022 R-2176	Physiology Molecular Biology
Gromov, Boris V.	Biological Institute of Leningrad University Oranienbaumskoye sch.2 Stary Peterhof Leningrad 198904 USSR (Tel) 257-97-40	Ultrastructure Biology of cyanobacteria and cyanophages
Grossman, Arthur	Carnegie Institution of Washington 290 Panama St. Stanford, CA 94305 USA (Tel) 415/325-1521	Phycobilisome biosynthesis Regulation of phyco- bilisome genes Adaptation of cyanobac- teria to stress
Hallbom, Lars	Inst. of Physiological Botany University of Uppsala Box 540 S-751 21 Uppsala SWEDEN (Tel) 46 - 18 - 18 28 14	Toxin production (especially Oscillatoria, Lyngbya, and Nodularia) Large scale production techniques
Hayes, Peter	Department of Botany University of Bristol Woodland Road Bristol, BS8 1UG U.K. (Tel) 0272/303030	Gas vacuole proteins
Hostos, Eugenio de	Carnegie Institution Department of Plant Biology 290 Panama St. Stanford, CA 94305 USA (Tel) 415/325-1521	Adaptation to sulfur starvation in blue-greens and Chlamydomonas

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Houghton, James	Dept. of Microbiology University College Galway, IRELAND (Tel) 091/24411 ext. 250	Genetics and genetic engineering
Huang, Tan-Chi	Institute of Botany Academia Sinica Nankang, Taipei Taiwan REPUBLIC OF CHINA	Physiology Taxonomy
Izui, Katsura	Dept. of Chemistry Faculty of Science Kyoto University Kyoto 606 JAPAN (Tel) 075-751-2111 ext. 3996	Phosphoenolpyruvate carboxylase gene structure and regulation
Jensen, Thomas E.	Department of Biological Sci. Herbert H. Lehman College of City University of New York Bedford Park Blvd. West Bronx, New York NY 10468 USA	Morphology Cell inclusions Response to heavy metals
Joset, Francoise	Departement de Biologie Universite de Luminy 13288 Marseille 9 FRANCE (Tel) 91/269000	Physiology and genetics
Juttner, F.	Inst. Chem. Pflanzenphysiol. Corrensstr. 41 D-74 Tübingen, WEST GERMANY	Volatile compounds Secondary metabolites Chemotaxonomy
Kaas, Hanne	Marine Pollution Laboratory National Agency of Environ- mental Protection Jaegersborg Alle 1 B DK-2920 Charlottenlund Copenhagen DENMARK (Tel) 45 1 61 14 00	Salt marsh cyanobacteria Taxonomy and ecology
Kallas, Toivo	Div. of Molecular Plant Biol. Hilgard Hall, Univ. California Berkeley, CA 94720 USA (Tel) 415/642-5959	Physiology, cell diff'n molecular biology Nitrogen fixation, photosynthesis
Kalosaka, Katerina	NRC Demokritos - Biology Aghia Paraskevi Athens 15310 GREECE (Tel) 01/651-3111 ext.444	Photosynthesis
Kaplan, Aaron	Department of Botany Hebrew University Jerusalem 91904 ISRAEL (Tel) 02/585234	Photosynthesis Ion transport CO2 concentrating system



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Karreman, C.	Sylvius Laboratoria Wassenaarseweg 72 2333 AL Leiden THE NETHERLANDS (Tel) 071/148333 ext. 6122	Cloning and expression of cyanobacterial genes
Katsuki, Hirohiko	Dept. of Chemistry Faculty of Science Kyoto University Kyoto 606 JAPAN (Tel) 075-751-2111 ext. 3995	Enhancement of photosynthetic CO <sub>2</sub> fixation Phosphoenolpyruvate carboxylase
Krogmann, David W.	Dept. of Biochemistry Purdue University W. Lafayette, IN 47907 USA (Tel) 317/494-1641	Photosynthesis Structure of protein catalysts Evolution
Kromkamp, Jacco	Lab. of Microbiology University of Amsterdam Nieuwe Achtergracht 127 1018 WS Amsterdam THE NETHERLANDS (Tel) 020/522-4073	Buoyancy regulation Gas vesicle synthesis Carbon metabolism
Krumbein, Wolfgang	Geomicrobiology Division Univ. of Oldenburg P.O. Box 2503 D-2900 Oldenburg FRG (Tel) 49/441/798-3382	Physiological ecology Nitrogen fixation Pleomorphy Endo-epilithic, hypersaline microorganisms
Lammers, Peter	Department of Chemistry New Mexico State University Las Cruces, N.M. 88003 USA (Tel) 505/646-3918	Nitrogen fixation Heterocyst development
Lanaras, Thomas	Botanical Institute University of Thessaloniki 540 06 Thessaloniki GREECE (Tel) Int'nat'l Exch +31 991447	Carboxysomes Carbon metabolism
Lau, Reginald	Department of Biology Queen's University Kingston, Ontario K7L 3N6 CANADA (Tel) 613/547-2604	Control of gene expression Molecular biology of heavy metal resistance
Laudenbach, Dave	Univ. of Toronto Dept. of Botany Toronto, Ontario CANADA M5S 1A1 (Tel) 416/978-5563	Plasmid replication and function
Lemaux, Peggy G.	Dept. of Plant Biology Carnegie Inst. of Washington Stanford, CA 94305 USA (Tel) 415/325-1521	Photosynthesis Nitrogen fixation Genetics

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Li, Shanghao	Laboratory of Phycology Institute of Hydrobiology Academia Sinica, Wuhan PEOPLE'S REPUBLIC OF CHINA	Nitrogen fixation
Lin, C.J.	Dept. of Agricultural Chemistry Taiwan Agricultural Research Institute Wufeng, Taichung Taiwan, REPUBLIC OF CHINA	Azolla/Anabaena
Lindblad, Peter	Inst. of Physiological Botany University of Uppsala Box 540 S-751 21 Uppsala SWEDEN (Tel) 46 - 18 - 18 28 22	Symbiosis Nitrogen fixation Immunocytochemical techniques
Löffelhardt, Wolfgang	Institut für Allgemeine Biochemie Universität Wien A-1090 Vienna Währingerstr. 38 AUSTRIA	Chloroplast, cyanelle, and cyanobacterial genomes
Machray, Gordon C.	Department of Biol. Sciences Dundee University Dundee D01 4HN UK (Tel) 0382/23181 ext.4278	Genetics and molecular biology
Marques, Silvia	Dept. de Bioquímica Fac. de Biología Universidad de Sevilla Apto. 1095 41080-Sevilla SPAIN (Tel) 617011 ext.11	Nitrogen metabolism
McFadden, Bruce	4660 - Biochemistry Washington State University Pullman, WA 99164 USA (Tel) 509/335-4937	Autotrophy Catalysis by RBCase/ oxygenase Transformation
Meeks, Jack	Dept. of Bacteriology University of California Davis, CA 95616 USA (Tel) 916/752-3346	Physiology Symbiosis Regulation of metabolism and cell differentiation
Merchant, Sabeeha	16 Divinity Avenue Harvard University Cambridge, MA 02138 USA (Tel) 617/495-4260	Expression of photo- synthesis genes in A. nidulans and Chlamydomonas
Michel, H.	Max Planck Inst. für Biochemie D-8033 Martinsried WEST GERMANY (Tel) 0049/89/85782382	Structure and function of reaction centers and light harvesting complexes

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Miller, A.G.	Department of Biology Queen's University Kingston, Ontario K7L 3N6 CANADA (Tel) 613/547-3139	Transport processes for bicarbonate and CO <sub>2</sub> Sodium in transport and pH regulation
Murata, Norio	Department of Regulation Biol. National Institute for Basic Biology Okazaki 444 JAPAN (Tel) 0564-54-1111 Ext. 600	Membranes and lipids
Murry, Marcia	MSU/DOE Plant Research Lab Michigan State University East Lansing, MI 48823 USA (Tel) 517/353-2049	Nitrogen fixation -- physiology, molecular biology Heterocyst development
Nandkar, P.B.	Department of Botany University of Nagpur Campus, Amraoti Road Nagpur 440010 INDIA	Metal pollution
Ohki, Kaori	National Institute for Basic Biology 38 Myodaijicho Okazaki 444 JAPAN (Tel) 0564-54-1111 (512)	Physiology (regulation by growth environments) Biochemistry of phycobili- proteins
Osiewacz, Heinz D.	Lehrstuhl für Allgemeine Botanik Ruhr-Universität Bochum Postfach 102148, WEST GERMANY	Molecular biology of cyanobacteria
Packer, Lester	Dept. of Physiology/Anatomy 2544 Life Sciences Bldg. University of California Berkeley, CA 94720 USA (Tel) 415/642-1872	Bioenergetics
Paerl, Hans	Institute of marine Sciences Univ. of North Carolina 3407 Arendell St. Morehead City, NC 28557 USA (Tel) 919/726-6841	Physiological ecology Nitrogen fixation Cyanobacterial-bacterial interactions, symbioses
Pakrasi, Himadri	Experimental Stn./E402-2107 DuPont de Nemours & Co. Wilmington, DE 19898 USA (Tel) 302/772-2610	Photosynthesis Membrane organization Genetics of unicellular cyanobacteria
Papageorgiu, George C.	NRC Demokritos - Biology Aghia Paraskevi Athens 15310 GREECE (Tel) 01/651-3111 ext.444	Photosynthesis

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Pearson, H.W.	Dept. Botany University of Liverpool P.O. Box 147 Liverpool L69 3BX UK (Tel) (0)51/709 6022	Physiology of microalgae/ cyanobacteria Applied microbial ecology
Pettersson, Annette	Inst. of Physiological Botany University of Uppsala Box 540 S-751 21 Uppsala SWEDEN (Tel) 46 - 18 - 18 28 22	Metal toxicity Ion transport Physiology Ultrastructure
Post, Anton	Laboratorium voor Microbiol. University of Amsterdam Nieuwe Achtergracht 127 1018 WS Amsterdam THE NETHERLANDS (Tel) 31/20/522-4070	Ecophysiology and photosynthesis
Potts, Malcolm	Dept. of Biochemistry and Nutrition Virginia Polytechnic Inst. Blacksburg, VA 24601 USA (Tel) 703/961-6315	Gene expression in cyanobacteria undergoing water stress and dessication
Rai, Amar N.	Department of Biochemistry School of Life Sciences North-Eastern Hill University Shillong 793 014 INDIA (Tel) 25136	Nitrogen metabolism in free-living and symbiotic cyanobacteria
Renstrom, Eva	Inst. of Physiological Botany University of Uppsala Box 540 S-751 21 Uppsala SWEDEN (Tel) 46 - 18 - 18 28 22	Glycolate metabolism Nitrogen metabolism
Rolfe, Stephen	Dept. of Biochemistry Tennis Court Road Cambridge CB2 1QW ENGLAND (Tel) 0223/351781 ext.241	Photosynthesis
Scherer, Siegfried	Lehrstuhl für Physiologie und Biochemie der Pflanzen Universität Konstanz D-7750 Konstanz, GERMANY (Tel) 07531/883669	Photosynth./respiration Oxidative phosphorylation Cytochrome oxidase NAD(P)H-dehydrogenase Systematics
Schmetterer, Georg	Institut für Physikalische Chemie Währingerstrasse 42 A-1090 WIEN AUSTRIA (Tel) 43-222/343616	Respiration Genetics

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Schrautemeier, Bernhard	MSU/DOE Plant Research Lab Michigan State University East Lansing, MI 48824-1312 USA (Tel) 517/353-6641	Interaction of photosynthesis and nitrogen fixation Carbon metabolism
Serrano, A.	Depto. de Bioquimica Fac. de Biología y C.S.I.C. Univ. de Sevilla Apdo. 1095 41080-Sevilla SPAIN (Tel) 54/717011 ext. 11	Photosynthetic electron transport Metabolism of nonprotein
Sherman, Louis	University of Missouri Division of Biological Sci. Tucker Hall Columbia, MO 65211 USA (Tel) 314/882-7727	Photosynthesis Membrane structure Genetics and molecular biology Unicellular cyanobacteria
Shi, Ding Ji	Institute of Botany Academia Sinica Beijing P.R. CHINA	Azolla-Anabaena symbiosis Energy metabolism in immobi- lization of cyanobacteria
Shinozaki, Kazuo	Center for Gene Research Nagoya University Furo-cho, Chikusa Nagoya 464 JAPAN (Tel) 052/781-5111 ext.2495	Gene organization of photosynthetic apparatus Transformation Endosymbiosis
Shively, J.M.	Dept. Biol. Sci. 338 Long Hall Clemson University Clemson, S.C. 2963419903 USA (Tel) 803/656-3595	Rubisco Carbon dioxide fixation, regulation Carboxysomes
Sidler, Walter	Institut für Molecularbiologie und Biophysik ETH-Honggerberg HPM CH-8093 Zurich SWITZERLAND (Tel) 01/377 2482	Amino acid sequences of biliproteins and linker polypeptides Red algae and cryptomonads
Simon, Robert D.	Department of Biology SUNY- Geneseo Geneseo, NY 14454 USA (Tel) 716/245-5301	Genetics Development Cell inclusions
Singh, P.K.	Laboratory of Blue-green Algae Central Rice Research Inst. Cuttack-753 006, Orissa INDIA (Tel) PBX 20020 Ext. 4	Nitrogen fixation Physiology Ecology and biofertiliz- ation to rice crop

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Smith, Geoffrey D.	Dept. of Biochemistry Faculty of Science Australian Nat'l University Canberra, A.C.T. 2601 AUSTRALIA	Hydrogen and nitrogen metabolism
Sotiropoulou Georgia	NRC Demokritos - Biology Aghia Paraskevi Athens 15310 GREECE (Tel) 01/651-3111 ext.444	Photosynthesis
Stevens, Edward S.	101 S. Frear Dept. of Molec. & Cell Biol. Pennsylvania State University University Park, PA 16802 USA (Tel) 814/865-1294	Metabolic regulation in prokaryotes Nitrogen metabolism Pigment biosynthesis Photosynthesis
Sugiura, Masahiro	Center for Gene Research Nagoya University Furo-cho, Chikusa Nagoya 464 JAPAN (Tel) 052/781/5111 ext.2495	Structure and expression rRNA, tRNA and ribosomal protein genes
Sutton, Ann	Dept. Biology Brookhaven National Laboratory Upton, NY 11973 USA (Tel) 516/282-3382	Regulation of genes of photosystem II in vegetative cells and heterocysts of Anabaena
Szalay, Aladar A.	Cornell University Boyce Thompson Institute Tower Rd. Ithaca, NY 14853 USA (Tel) 807/257-2030 ext.315	Homologous recombination Heterologous gene expression Site-directed alteration of polypeptides
Tabita, F. Robert	Dept. Microbiology & Center for Applied Microbiology University of Texas at Austin Austin, TX 78712 USA (Tel) 512/471-3512	Nitrogen fixation and metabolism Carbon dioxide fixation
Tandeau de Marsac, Nicole	Physiologie Microbienne Institut Pasteur 28 rue du Dr. Roux 75724 Paris Cedex 15 FRANCE (Tel) 567-46-98	Molecular organization, function of light- regulated genes Plasmids and restriction endonucleases
Taylor, Mary	Dept. of Biochemistry Tennis Court Road Cambridge CB2 1QW ENGLAND (Tel) 0223/351781 ext.241	Photosynthesis
Tel-Or, Elisha	Agric. Botany Hebrew University Rehovot 76100 ISRAEL (Tel) 08/481262	Salt tolerance, adapt'ion Anabaena/Azolla Heterotrophic metabolism Peroxide removal



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Thiel, Teresa	Biology Dept. University of Missouri St. Louis, MO 63121 USA (Tel) 314/553-6208	Genetics Cyanophage Regulation of heterocyst and akinete development
Thomas, Joseph	Biology and Agriculture Div. Modular Labs Bhabha Atomic Research Centre Trombay, Bombay 400 085 INDIA (Tel) 5514910 ext. 2340	Biochemical genetics Physiology Field application of cyanobacteria
Thomas, Jean-Claude	Lab. des Biomembranes et Surfaces Cellulaires Vegetales Ecole Normale Supérieure 24 rue Lhomond 75 231 Paris Cedex 05 FRANCE (Tel) 329-12-25 poste 35-28	Phycobiliproteins Phycobilisomes
Thuriaux, Pierre	Service de Biochimie Bat 142 C.E.N. Saclay C.E.N. Saclay 91191 Gif Sur Yvette Cedex FRANCE (Tel) 908-35-86	Cloning of photosynthetic genes from unicellular cyanobacteria Plasmid function
Tiboni, Orsola	Dept. of Genetics & Microbiol. Via S. Epifanio 14 - 27100 Pavia, ITALY (Tel) 0382/31613	Biochemistry Molecular genetics Spirulina
Tuli, Rakesh	Biology and Agriculture Div. Modular Labs. Bhabha Atomic Research Centre Trombay, Bombay - 400 085 INDIA	Genetics, physiology, ecology Nitrogen fixation
Van der Oost, John	Plantenfysiologie de Boelelaan 1087 1081 HV Amsterdam HOLLAND (Tel) 020/5485704	Hydrogen metabolism Non-heterocystous cyanobacteria
Vermaas, Wim	DuPont Experimental Station E402/2227 Wilmington, DE 19898 USA (Tel) 302/772-2494	Transformation Photosystem II
Vonshak, Avigad	Jacob Blaustein Institute for Desert Research Sede Boqer Campus 84990 ISRAEL (Tel) 057/35333 ext. 76	Algal physiology Environmental factors on algal growth Osmotic stress and light intensity on Spirulina
Walsby, A.E.	Dept. of Botany University of Bristol Bristol BS8 1UG, ENGLAND (Tel) 0272/303030	Gas vesicles Planktonic cyanobacteria Gliding movement Heterocysts

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Wasmann, Cathy C.	Dept. of Biochemistry Rm. 528 Bio Science West University of Arizona Tucson, AZ 85721 USA (Tel) 602/621-7982	Cyanophora paradoxa Molecular Biology of cyanobacteria Protein transport into eukaryotic organelles
Whitton, B.A.	Dept. of Botany University of Durham Durham, DH1 3LE, ENGLAND	Nitrogen fixation, rice Heavy metal accumulation Biology of Rivulariaceae
Wilmotte, Annick	Departement de Botanique Universite de Liege Sart Tilman B-4000 Liege BELGIUM	Taxonomy
Winder, Ben de	Laboratorium voor Microbiologie Nieuwe Achtergracht 127 1018 WS Amsterdam, NETHERLANDS (Tel) 020/522-4073	Stabilization of sandy surfaces
Wolk, C.P.	MSU-DOE Plant Research Lab. Michigan State University East Lansing, MI 48824 USA (Tel) 517/353-2049	Development, physiology, and genetics
Wood, Nancy	Dept. of Biology Roosevelt University 430 S. Michigan Ave. Chicago, IL 60605 USA (Tel) 312/341-3682	Cyanophages Transformation and transduction Proteolysis Amino acid utilization
Wright, S.J.L.	School of Biological Sciences University of Bath Bath, Avon, BA2 7AY, UK (Tel) 0225 61244 extn. 421	Microbial lysis of cyanobacteria Pesticide effects
Zevenboom, Wanda	Laboratory of Microbiology University of Amsterdam NW. Achtergracht 127 1018 WS Amsterdam, NETHERLANDS (Tel) 020/5224070	Photosynthesis, pigments Ecophysiology, nutrient uptake Competition, succession Marine & freshwater species

(P.S. Some of you may have an appetite for addresses that is only tickled by the foregoing. For you, there is a document -- A List of Scientists Working on Blue-Green Algae/Cyanobacteria (Nov. 1985) -- containing over 400 of our ilk. The editor is P.A. Roger, Soil Microbiology Department, International Rice Research Institute, P.O. Box 933, Manila Philippines.)